

Bureau of Land Management: Addressing the Transportation Challenge





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Summary

The Bureau of Land Management (BLM) maintains a transportation network that encompasses 76,088 road miles, 776 bridges, and 18,412 miles of multiple use trails and connects 258 million acres of BLM-administered public lands in 11 western states. It is more than one and a half times the 46,837 miles of the Interstate Highway System. This comparison demonstrates the magnitude of this network, and puts in perspective the challenges the BLM faces in providing safe transportation on public lands.

Another component of the transportation network is the Land Management Highway System (LMHS), which identifies the state and county maintained public roads and bridges that are critical connectors to the BLM transportation system, and to BLM public lands. The LMHS enables the BLM to partner with these respective state and county agencies in providing comprehensive transportation management to best serve the traveling public.

Comprehensive transportation planning has become a major priority to the BLM. Extensive cross-country travel, which can impact vegetation, soils, air and water quality, and cultural resources, and can fragment habitat on “open” or unrestricted lands, has led the BLM into an era that calls for thoughtful and comprehensive transportation planning.

What the BLM does

The BLM administers public lands under the multiple-use mandates established by the Federal Land Policy and Management Act (FLPMA). These lands are hosted in 11 primary states, and are commonly used for recreation, resource harvesting activities, energy development, conservation, wildfire management, and grazing. All these uses and activities have a critical place within the American economy, locally, regionally, nationally, and internationally.

How roads, bridges, and trails serve the BLM and the public

The BLM transportation system has historically served the purpose of administering public lands; over the years, it was primarily used by BLM personnel and lease holders. Now, as use by the traveling public has been increasing at a rapid rate, the balance of use is shifting from administrator to stakeholder.

Increased use by the general public is linked to escalating population in both the urban metropolitan areas and rural communities contiguous to public lands. The completion of the nation's Interstate system, and ongoing improvements to state highway systems, has also helped to make remote public lands more accessible and convenient to large populations.

The population in western rural communities is growing. Where public lands were once destinations for extended stay recreation opportunities, they now serve as backyard afternoon retreats. This adds to a much larger and growing daily public use and travel.

Resource harvesting activities are also increasing. These industries serve as a major employer in the West, with many of the employment opportunities located on BLM-administered lands. The co-existence of recreational and resource harvesting activities is having a cumulative impact that may compromise safe public travel on the BLM transportation system.



Introduction: Transportation and the BLM mission

For over 60 years, the Bureau of Land Management (BLM) has managed extensive tracts of public land throughout the United States. Currently the BLM manages 258 million surface acres and 700 million acres of subsurface mineral estate, most of which lie within the 12 western states.ⁱ These lands cover roughly 13 percent of the total area of the United States—an area greater than Texas, Oklahoma, and New England combined—and account for more than 40 percent of all federally managed land, making the BLM the single largest land holder in the country (Figure 1). Oversight of such a vast area requires sound operational and management practices that provide the highest level of benefit to the nation.

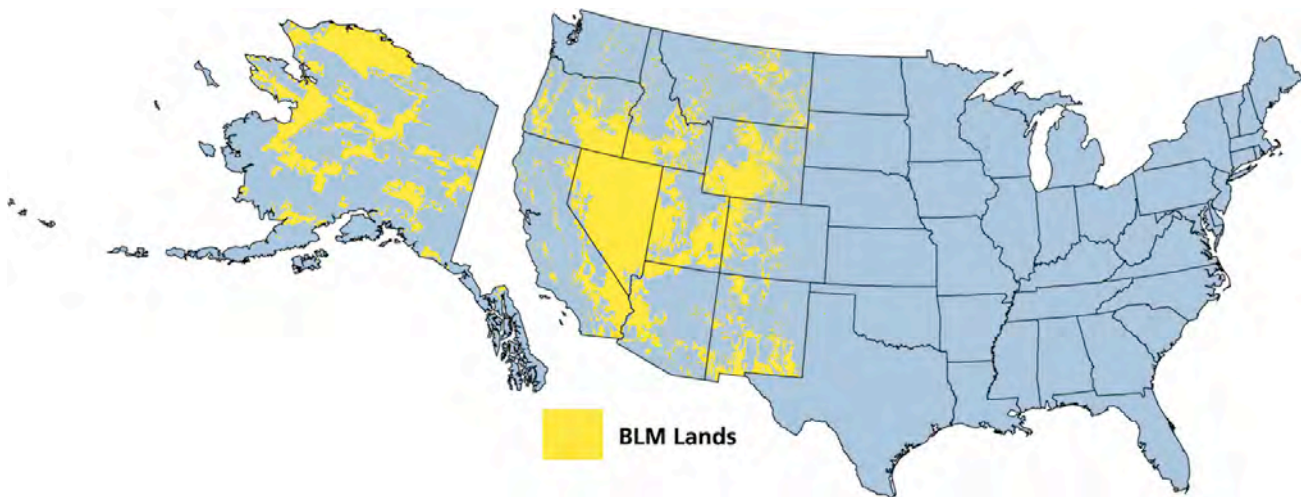


Figure 1 Public lands administered by the BLM

To adequately serve the needs of the American people for generations to come, the BLM is committed to management practices that sustain the health, diversity, and economic vitality of our public lands. These practices are based upon the principles of multiple use and sustained yield of our nation's resources within a framework of conservation, environmental responsibility, and scientific technology. Pivotal to this strategy is maintaining and improving upon the BLM's existing transportation system in a manner that enhances accessibility, connectivity, and safety, while at the same time addressing public needs, preserving ecological functions, and fostering economic development.

A healthy transportation network is crucial for the BLM to ensure the sustained vitality of America's public lands.

The core resources of BLM lands include recreational opportunities, rangelands, timber, minerals, watersheds, fish and wildlife, wilderness, and scenic, scientific and cultural values. Through the harvesting of resources, production of energy, and grazing activities, BLM lands provide significant economic benefit to America and to the states and counties where they are located. Based on FY04 data, the annual revenue generated from these activities is estimated to be in excess of \$2.2 billion.ⁱⁱ

BLM lands also offer virtually boundless opportunities for outdoor recreation, accommodating millions of visitors every year. In 2006 alone, there were more than 69 million visitor days, an increase of 7 million since 2001.ⁱⁱⁱ The recreational value of BLM lands is realized not only by the millions of annual visitors, but also by adjacent communities whose economies directly and indirectly benefit from recreation activities.

The BLM's transportation system must be flexible and able to respond to the changing American environment. For instance, as the recreational use of BLM lands increases—especially as the population continues to grow in the western states, and as new residential areas are developed closer to BLM lands—greater demands will be placed on the BLM's roads, bridges, and other transportation facilities. The BLM's transportation systems must keep pace with recreational demands and other activities on BLM lands.



Transportation challenges and issues

BLM lands provide significant benefit to the American people and to the national economy. There is growing demand for recreational access, conservation management, and resource harvesting, and especially energy production. As recreational use increases, roads, bridges, and trails must be kept in good repair to ensure that visitors can safely access public lands. These demands do not just affect the BLM's transportation system; they also pose significant changes to broader wildfire and resource management activities, especially along the wildland-urban interface as development expands into formerly remote areas.

The transportation challenges and issues currently faced by the BLM include:

- The improvements needed in transportation system conditions to support the current and predicted recreational usage levels.
- The growing demands being placed on the BLM transportation system.
- The replacement of the “open-system” transportation model by comprehensive travel management.
- Federal laws and regulations that have established a new context for transportation planning, partnerships, and research.
- The growing interest in alternative transportation on BLM-managed lands.
- The requirements for aquatic-species passage and the reestablishment of native plants along BLM roadway corridors.

Growing demand is challenging the BLM's transportation system

As the population in the West continues to grow, creating added pressures and heightened management challenges, the job of balancing resources and multiple uses on BLM lands becomes more complex each year. With over 68 million people living in the region today, the West continues to be one of the fastest-growing areas in the nation. Growth and the accompanying urbanization place new demands on BLM-managed lands and on the roads that serve them (**Figure 2**).



	BLM States
	Urban Centers
	BLM Lands greater than 100 miles from Urban Centers
	BLM Lands 50-100 miles from Urban Centers
	BLM Lands 25-50 miles from Urban Centers
	BLM Lands 0-25 miles from Urban Centers
	Cities

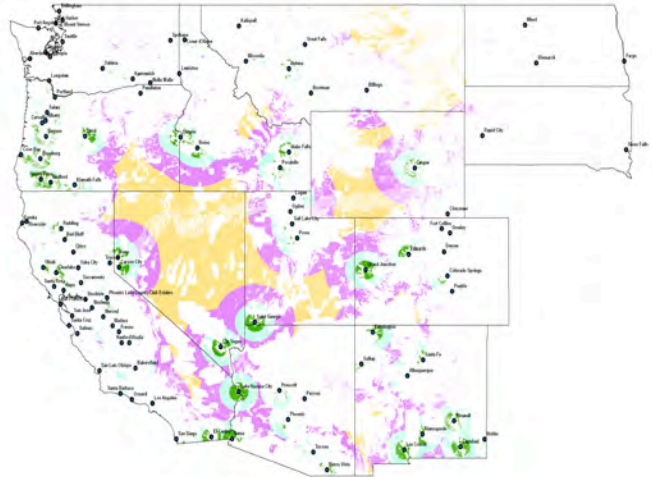


Figure 2 Proximity of BLM lands to urban centers^{iv}

Increasingly, BLM roads and the adjacent Land Management Highway System (LMHS) are playing important roles in the travel choices of millions of people throughout the western United States. Between 2000 and 2006, the 12 western states comprising the vast majority of BLM lands grew by 10 percent, outpacing national population growth as a whole by 4 percent (Figure 3). Four of the five fastest growing states during that period have significant BLM land holdings. Nevada experienced the largest growth throughout the 2000-2006 period at 24 percent, followed by Arizona with 19 percent, Utah and Georgia at 14 percent, and Idaho, at just above 13 percent. With this rapid growth, BLM roads have seen an increase in use, creating an assortment of safety, rehabilitation, and accessibility issues, especially since more and more visitors must share BLM transportation facilities with vehicles used for energy-production activities.

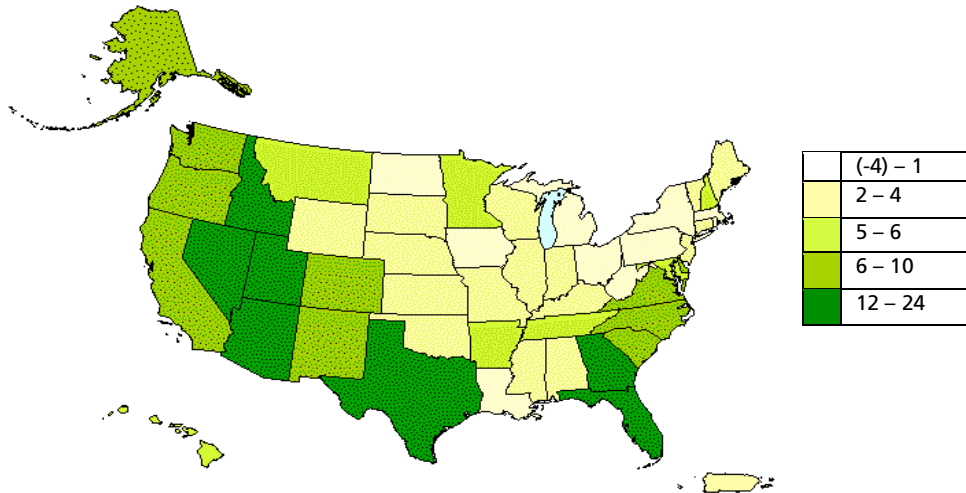


Figure 3 Population percent change, 2000–06

Increased recreation demand

As steady growth and urbanization in the West continues, the American public's desire for recreation is increasing, resulting in greater use of BLM lands. This increased use requires greater transportation system management and investment. Recreational visitors to BLM lands are drawn to what has been characterized as the last remnants of the American Frontier. In many areas, BLM lands provide the best, and sometimes the only, venue for self-directed, dispersed recreation.

Annual visits to BLM lands have increased by nearly five million, over 9 percent, between 1999 and 2005 (**Figure 4**). This increased visitation has led to a mix of dispersed uses, creating ever greater administrative responsibilities in managing the transportation system to ensure the highest level of visitor safety and satisfaction.

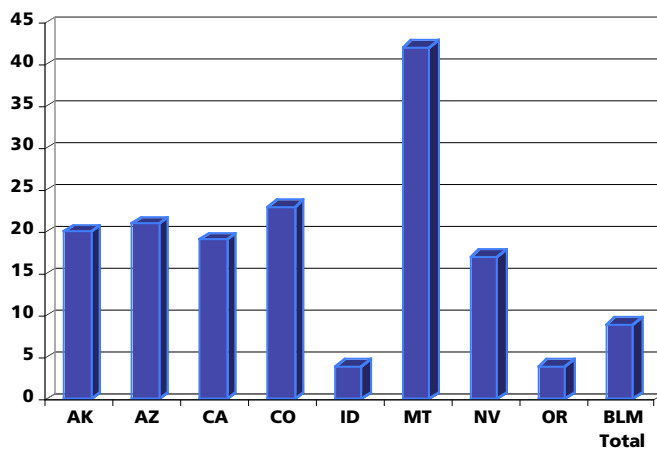


Figure 4 Percent increase in recreational visits to BLM lands, by state, 1999-2005

Recreation management on BLM lands emphasizes resource-dependent recreation opportunities, such as driving for pleasure, hiking, boating, trail riding, education and interpretive activities, and off-highway vehicle (OHV) use. While much of the recreation is dispersed, the BLM also provides specific access through developed recreation sites and trails, visitor centers and facilities, typically located in areas referred to as Special Recreation Management Areas (SRMAs).

Recreational activities on BLM lands are likely to increase as various agencies encourage fitness programs; for instance, the Centers for Disease Control and Prevention (CDC) are actively promoting outdoor recreation through their Active Community Environments Initiative (ACES). To further the goals of ACES, CDC has partnered with the National Park Service's Rivers, Trails, and Conservation Assistance Program to promote the development and use of close-to-home parks and recreational facilities.



Accessibility

Providing adequate and accessible visitor facilities is a central goal of the BLM's recreation program. In the past, the BLM has successfully used available resources to achieve high levels of customer satisfaction and to maintain facility conditions. In 2006, 97 percent of recreation visitors to SRMAs were satisfied with their visit, up 6 percent from the previous year. During that same time, 92 percent of facilities at SRMAs were in good or fair condition. However, only 8 percent of facilities at SRMAs were universally accessible, missing the BLM's target by 2 percent. In order to maintain high levels of visitor satisfaction, improved accessibility to facilities on BLM lands is critical.

The “open-system” model is being replaced by comprehensive travel management

In addition to the tens of thousands of miles of BLM roads and trails that are formally recognized, there are hundreds of thousands of miles of roads and trails that have been informally created by visitors’ unrestricted access to BLM lands. Given the nature of their creation, these roads and trails are hard to identify and manage.

In part because of extensive unmanaged cross-country travel, which can impact vegetation, soils, air and water quality, and cultural resources on “open” or unrestricted lands, comprehensive transportation management has become a greater priority. The BLM is amending and revising numerous land use plans in order to shift millions of acres currently designated as “open” or “unrestricted” to “limited.” The BLM is currently moving towards a system of keeping motorized vehicles on designated sustainable routes and reducing off-system travel.

Comprehensive travel management is the proactive management of public access, natural resources, and regulatory needs to ensure that all aspects of road and trail system planning and management are considered. This includes resource management, road and trail design, rehabilitation, and recreation and non-recreation uses of the roads and trails. The BLM’s comprehensive travel management will address all resource aspects and accompanying modes and conditions of travel on the public lands. However, implementing comprehensive travel management, by inventorying, evaluating, and deciding how roads or areas will be designated, is an enormous task.

Context for transportation planning, partnerships, and research

In managing its transportation system, the BLM must be cognizant of legislative, regulatory, and policy requirements, as well as an evolving context for transportation planning and research.

- Per Title 23, Chapter 204 of the U.S. Code, comprehensive transportation planning must involve relevant stakeholders, including the Federal Lands Highway Program, other federal lands management agencies, state, local, and tribal governments, and the private sector. There is a growing emphasis on partnerships in both program operation and project delivery.
- There are data-collection requirements in connection with management systems for safety, pavement-condition, bridge, and congestion data. Managing (and paying for) the collection of this large amount of data, coordinating such data with data collected by other federal lands management agencies, and incorporating it into the transportation planning process will all be significant challenges.
- The Department of the Interior has established the Facility Condition Index (FCI) and Asset Priority Index measures, to assist in determining

investment priorities and in making the most effective use of capital funding. These data must be reconciled with other transportation data, including those measures described above.

- There is increasing interest, within both the transportation and public-lands communities, in researching recreation and transportation on public lands, including traffic and visitation studies and best practices in areas such as travel management.

Growing interest in alternative transportation

Nearly two-thirds of BLM lands in the lower 48 states can be reached within one hour from an urban area.^v This close proximity has led to increased levels of automobile traffic on BLM roads, increasing air and noise pollution levels, and greater levels of roadside damage from parking in undesignated areas. As visitation to BLM lands increases, some sites are experiencing traffic congestion and parking shortages at levels experienced by some major national parks. One example is the La Posa Long-Term Visitor Area along the Arizona-California border and its gateway community of Quartzite, which are severely congested due to the influx of northern retirees who visit during the winter.

Several BLM sites have been identified as potential candidates for alternative transportation systems (ATS). ATS can help reduce traffic congestion and parking shortages, thereby increasing recreational opportunities and visitor satisfaction while decreasing environmental impacts to the area. A shuttle service, for example, transporting hikers to-and-from designated parking areas, could make long-distance and one-way hiking trips easier while removing cars from BLM roads.



Aquatic-species passage and the reestablishment of native plants along BLM roadway corridors

The Native Plant Materials Program (NPMP) is in its seventh year at the BLM and is in direct response to congressional direction to “supply native plant material for emergency stabilization and longer term rehabilitation and restoration efforts.” NPMP works with the private sector to increase the amount of seed available and the number of native species with seed available for these efforts. Re-vegetation of native plants along disturbed sections of BLM roads will work toward efforts of erosion control, reforestation, fire rehabilitation, forage enhancement, noxious weed control, and meadow/wetland restorations.

On many BLM roads there are culverts that allow water to flow from one side of the road to the other. Many of the streams that pass through these culverts are essential habitat for fish and other aquatic species. When culvert openings are too high above the streams for fish to jump into or culverts are positioned at a grade too steep for fish to ascend, they pose barriers to fish attempting to access their natural rearing and spawning habitat. The BLM is concerned about the condition of the culverts on fish bearing streams because many, either because of deterioration or design, do not provide passage for all life stages as required by current standards. The costs of facilitating the passage of aquatic species beneath BLM roads include those associated with constructing, maintaining, replacing, or removing culverts and bridges, as needed.

Importance of the BLM transportation system

BLM-owned transportation facilities represent a substantial public investment in roads, bridges, and trails. Use of BLM lands is increasing as a result of the growth in resource harvesting and, through the nature of the fast-growing American West, from increasing visitor recreation. Recreational growth in particular, along with local use, underscores the need to maintain these facilities in a safe condition—not just to enable their continuing use, but to ensure the ongoing contributions of BLM lands to the regional and national economies.

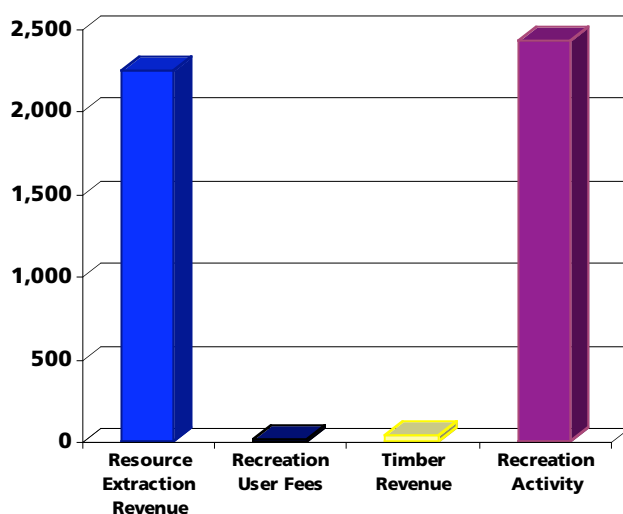


Figure 5 Economic activity and revenues (in millions of dollars)

Economic benefits of resource harvesting and other land-management activities

The BLM plays an important role in fostering commercial activities on public lands, as it manages more land area than any other federal agency. Commercial activities on BLM lands include natural resource harvesting, grazing, and timbering. Recent surges in energy pricing have increased interest in further resource production. Commercial interests are reviewed by the BLM, which may issue permits and licenses for exploration, development, and production of oil, natural gas, and geothermal resources on both federal and Indian lands to eligible parties. In addition to administering this process, the BLM is responsible for inspection and enforcement of all resource harvesting and development operations to ensure that lessees and operators comply with BLM regulations.

By harvesting resources from public lands, private industry provides substantial returns to the American people through a mix of tax and non-tax revenues. In

Oil and gas facts and figures, FY2003:

Oil accounts for 40% of U.S. energy consumption; natural gas accounts for 25%

2.2 quadrillion BTUs of total gas sales are produced from onshore federal lands

600 trillion BTUs in total oil sales are produced from onshore federal lands

Onshore federal gas production: 11% of total domestic production

Onshore federal oil production: 5% of total domestic production

2005, coal leases alone generated \$1.4 billion in federal revenues. Applications for permits to drill (APDs) have nearly doubled in recent years due to increasing energy prices, while oil and gas leasing has remained relatively static. Energy and mineral royalties, rents, bonuses, sales, and fees accounted for \$2.2 billion (Table 1). The total, direct and indirect, economic impact of energy and mineral production on the public lands amounted to an estimated **\$24.7 billion.**^{vi}

Table 1 Commercial activities summary for FY 2004
(millions of dollars)
Source: BLM 2005 Annual Report (p. 18)

Activity	Federal revenue
Oil & Gas, Geothermal, & Helium	1,620
Coal	545
Other Leasable and Salable Materials	46
Grazing	9
Timber	22
Total	\$2,242



Economic benefits of recreation and visitor spending

A transportation network in good condition is essential to ensure access to BLM lands, to the successful execution of the BLM mission, and to the implementation of major activities. One of the BLM's greatest management challenges is providing transportation routes to access public lands across a range of conditions, while also providing access to areas for a wide variety of both motorized and non-motorized recreational activities. The BLM estimates that of the 22 million visitors per year who participate in motorized recreation: 9 million participate in driving for pleasure, 12 million in off-highway vehicle travel, 500,000 in snowmobiling, and another 500,000 who participate in other specialized motorized sports, events, and activities. Without transportation facilities in sufficient condition, visitation may not be sustainable; this could

affect the BLM's economic contributions. In general, road rehabilitation will not only improve the possibility of maintaining visitation, but will also support increased visitation by providing better road surfaces, increasing revenues, and growing the economies of local communities.

The BLM manages 1,237 campgrounds, 17,510 campsites, and 17 National Conservation Areas. Fifty-seven percent of recreational visitor days are spent in the National Landscape Conservation System, which includes National Monuments, National Scenic and Historic Trails, Wild and Scenic Rivers, Wildernesses, Wilderness Study Areas, Cooperative Management and Protection Areas, Forest Reserves, and National Recreation Areas.

The BLM uses about 13 percent of its funding to contribute to the Department of the Interior's goals for recreation. BLM-administered public lands and waters provide visitors with a vast array of recreational opportunities. In 2006 alone, over 69 million visitor days^{vii} were spent on BLM lands in the 12 western states, with well over 40 percent of the annual visitor days spent camping and picnicking. While most of the visits to BLM-managed public lands involve camping in either developed recreation sites or dispersed-use areas, many visitors come simply to view landscapes and other unique natural or cultural heritage features of public lands. Other important activities include hunting, fishing, wildlife viewing, hiking and backpacking, motorized and non-motorized boating, off-highway vehicle (OHV) driving, and mountain bicycling.

Some BLM recreational sites generate revenues through entrance permits, daily use permits, and specific event or group leases. Of the 3,496 BLM recreation sites, 380 sites require permits or recreational fees. In FY 2006 the over \$13 million generated in revenue was used to make improvements at those sites. The top three states generating recreational revenues were (in order) California, Nevada, and Utah. Ten percent of BLM user fees are from OHVs and pleasure driving, while another 5 percent are from boating^{viii}. Although these revenues are significant, they only include recreational permit and lease revenues to the BLM, which are minor in comparison to total visitor spending in adjacent and surrounding communities.

Over 19% of the BLM's visitor days can be directly associated with transportation (excluding transportation to BLM lands)

Visitors to BLM lands purchase a variety of consumer goods and services, including food and beverages, groceries, fuel, souvenirs, and lodging. Depending upon the length of stay and the recreation activity, visitor spending differs between activity groups. For example, campers presumably concentrate more of their total spending on groceries and fuel rather than on restaurant meals. These expenditures represent *direct* impacts.^{ix} Secondary or indirect impacts can be broken down into two categories: *intermediate* and *induced*. The intermediate impacts represent the increased activity in supplying industries, or supply chain growth, whereas the induced effects represent the economic activity created by consumer demand from increased personal income to the region. The BLM's Recreation Management Information System (RMIS) data was used in conjunction with the National Park Service's Money Generation Model Version 2^x to estimate the direct, indirect, and induced impacts of recreation visitors to BLM lands.

As shown in **Table 2**, the total, direct and indirect, economic benefits of recreational visitor spending on BLM public lands amounts to an estimated **\$2.4 billion in direct sales, 33,973 jobs sustained, and \$883.7 million in personal income generated.**

Table 2 Economic impacts of visitor spending: direct and secondary impacts^{xi} (dollar concepts in thousands of dollars)
Source: Estimate using Money Generation Model 2 (MGM 2)

Direct effects			
Spending category	Direct sales	Jobs	Personal income
Motel, hotel cabin or B&B	\$489,138	7,100	\$183,046
Camping fees	97,856	670	12,873
Restaurants & bars	366,702	8,083	139,051
Admissions & fees	168,804	3,652	61,198
Other vehicle expenses	16,486	159	5,154
Local transportation	5,165	104	3,061
Retail trade	191,781	3,819	97,824
Wholesale trade	58,124	426	23,581
Local production of goods	92,249	202	7,156
Total direct effects	1,486,306	24,215	532,944
Secondary effects	941,069	9,758	350,769
Total effects	\$ 2,427,375	33,973	\$ 883,713

BLM operations currently employ 10,852 people, of which 2,717 are firefighters and 246 are law enforcement personnel; these represent direct jobs. On top of the BLM's operational employment, the recreational spending at BLM lands has created an estimated 24,215 direct private sector jobs supporting consumer-based industries such as lodging, retail, and restaurants. The secondary job impacts account for almost one-third of the job growth due to visitor spending (**Figure 6**).

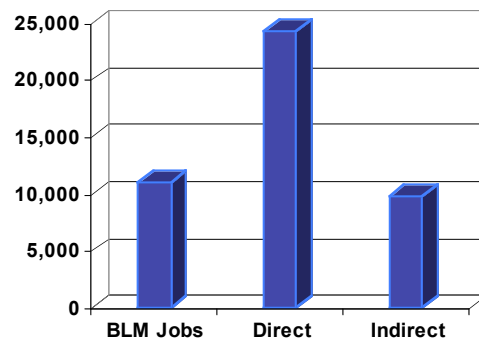


Figure 6 BLM, direct impact, and indirect impact jobs
Source: Estimate using Money Generation Model 2 (MGM 2)

BLM visitation generates over \$883 million annually in personal income, and another \$2.4 billion in annual sales for the communities in or adjacent to BLM lands. Of that total spending lake and stream fishing contributes almost \$500 million in total sales. The magnitude of these impacts are significant, as the majority of BLM recreational land surrounds rural areas, and therefore helps to maintain the economic base by expanding activity within an entire region.

Table 3 illustrates statewide impacts.

Table 3 Visitor spending economic impact summary, by state (all dollar concepts in thousands of 2005 dollars)
Source: Estimate using Money Generation Model 2 (MGM 2)

	Visitor days	Total spending	Total jobs	Total personal income	Federal fuel tax	State fuel tax
Alaska	1,018,162	36,092	711	18,493	525	343
Arizona	13,962,035	99,806	1,966	51,140	1,452	2,131
California	16,495,323	301,815	5,945	154,647	4,392	6,445
Colorado	4,739,489	170,291	3,354	87,255	2,478	4,444
Eastern States	5,271	-	-	-	-	-
Idaho	4,554,515	201,641	3,972	103,319	2,934	5,980
Montana	3,069,322	129,038	2,542	66,118	1,878	4,133
Nevada	7,061,771	172,544	3,399	88,410	2,511	4,913
New Mexico	1,773,079	67,479	1,329	34,575	982	1,361
Oregon	6,840,156	256,288	5,048	131,319	3,729	7,297
Utah	8,014,802	215,723	4,249	110,534	3,139	6,270
Washington DC	703	-	-	-	-	-
Wyoming	2,312,608	73,222	1,442	37,518	1,065	1,129
Totals	69,847,236	1,724,687	33,973	883,713	25,096	44,445

Predicted impacts of visitor spending and growth

Considering population growth and intra-U.S. migration flows to the western states, recreational visitation to BLM lands should continue to increase. Substantial economic growth in the western states has already resulted in millions migrating to growing communities that are within an hour's drive of formerly remote public lands. The overall growth and increased visitation has a significant impact on the transportation needs of the BLM's roads. From 1970 to 2004, the population grew within the BLM's major states by 29 million people, representing a 96 percent increase in population, which indicates that the states with BLM lands have been growing faster than the nation as a whole.

For this analysis, it was assumed that trips to BLM lands will increase at the same rate as population in the 12 major BLM states. Based on the population growth rates extracted from the U.S. Census Bureau's publication "Population Projections: States, 1995 – 2025," this assumption should be considered conservative, as recent growth between 1995 and 2005 on annual trips to BLM lands was over nine percent. Population growth and migration to the western and

mountain states will have a dramatic effect on BLM lands. According to the U.S. Census Bureau, the greatest growth will occur in states that have the most BLM lands. **Figure 7** shows the projected natural growth rate, which is as high as 14 percent (this rate does not include migration, meaning that the total real growth may be even higher). Currently, the western states (not including Alaska) receive over 98 percent of the visits to BLM lands. As population growth continues, it is expected that the demand on BLM roads and bridges will also continue to increase. Overall, visitor days at BLM recreation sites have already increased 80 percent since 1990.

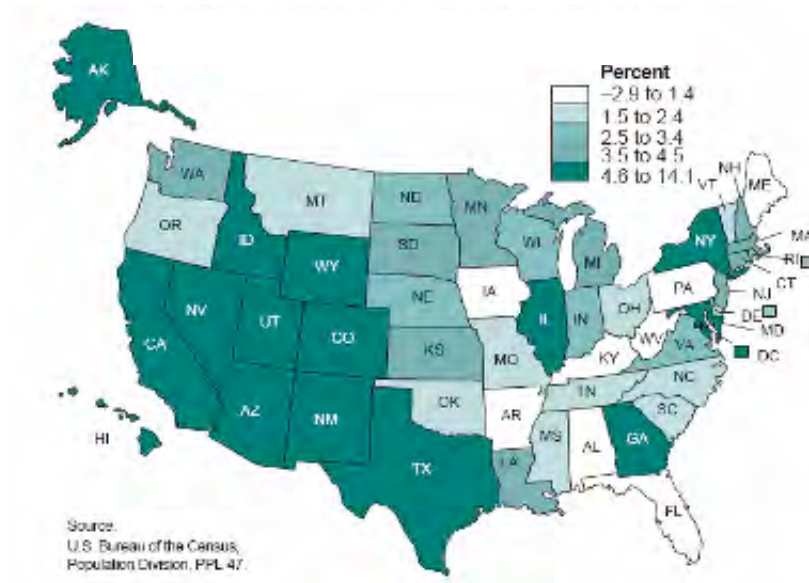


Figure 7 Projected average annual population natural growth rate

The overall annual spending impacts recreation and tourism will have on communities adjacent to BLM lands will increase by \$200 million—from \$1.7 billion in 2005 to \$1.9 billion in 2015 (**Table 4**). The overall personal income will also increase as much as 11 percent, from \$883 million to \$984 million. **Figure 8** shows the total jobs for 2005 in blue, and the purple stacked graph shows the additional jobs created in 2015. The total stacked graph demonstrates the total number of jobs maintained by BLM recreational activities for the year 2015. The largest impacts are predicted to occur in California, Oregon, Utah, and Idaho. The difference in total jobs created by recreation on BLM lands between 2005 and 2015 represents 3,858 jobs.

Table 4 Total 2015 spending and personal income
(in thousands of 2005 dollars)
Source: Estimate using Money Generation Model 2 (MGM 2)

2015	Total spending	Personal income
Alaska	40,784	20,897
Arizona	110,836	56,791
California	362,561	185,773
Colorado	184,202	94,384
Idaho	220,988	113,232
Montana	137,119	70,258
Nevada	181,629	93,065
New Mexico	76,985	39,446
Oregon	283,172	145,095
Utah	238,897	122,409
Wyoming	82,633	42,340
Total	1,920,555	984,074

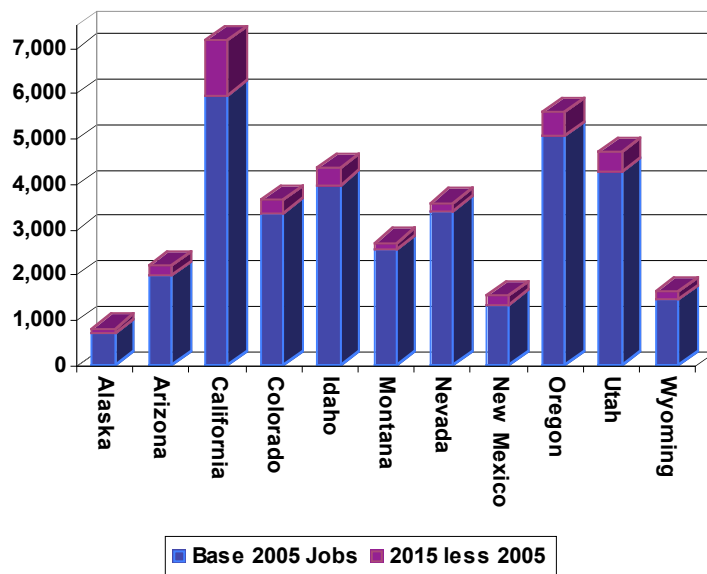


Figure 8 Jobs in thousands, 2005 and 2015

Transportation's role in wildfire management

As wildlands become more integrated with nearby urban areas, wildfire management has become more important in protecting natural resources and public and private infrastructure. Every summer in the West, wildfires burn millions of acres of public lands. In 2006 alone, wildfires burned nearly 10 million acres, more than any other year on record.^{xii} The BLM's wildfire operational strategy involves not only fire suppression but also managing fuels to reduce the threat of future large scale disasters. Fuels management involves both removing heavy forest debris and using prescribed burns as a natural tool to

manage unhealthy forest parcels. The roads, bridges, and trails on BLM lands provide critical access for wildfire mitigation strategies and escape routes for fire crews and the general public.



Transportation's role in public safety

As the public lands become more integrated with urban areas and as the number of recreational visits continues to rise, the BLM's transportation network has become increasingly important in providing access for public safety related functions such as law enforcement, search and rescue, and emergency medical services. Increasing use of the public lands for recreation brings increasing demand by users who become lost or injured and require some level of search and rescue and/or emergency medical services. The roads, bridges, and trails on BLM lands provide critical access for public safety officials, including state and local law enforcement agencies who have primary responsibility for providing these services on public lands. It is also important that roads be properly regulated through signs, law enforcement patrols, and enforcement as necessary to maximize public safety.

The BLM transportation system

The BLM manages a network of 76,088 miles of roads—more than one and a half times the 46,837 miles of the Interstate Highway System.^{xiii} Two other key components of the BLM’s transportation system are its 776 bridges and over 18,000 miles of multiple use trails (**Table 5**).

Table 5 BLM roads, bridges, and trails, by state

State	Miles of roads	Miles of trails	Number of bridges
AK	34	2,444	16
AZ	1,787	755	2
CA	4,952	4,517	206
CO	4,090	1,204	25
ID	8,377	3,946	52
MT	3,256	289	19
NV	10,288	431	0
NM	5,819	134	11
OR	23,981	1,202	405
UT	9,517	3,424	6
WY	3,987	66	34
Total	76,088	18,412	776

For the most part, the BLM manages its own transportation system, but also enters partnerships with the Federal Highway Administration (FHWA) and state and county transportation agencies to manage roads that provide access to BLM lands, resources, and facilities. Referred to collectively as the LMHS, these state and county owned roads cover more than 7,000 miles across 257 designated routes.

Beyond these road networks, access to over 138 million acres of BLM administered land—some 53 percent of the total—is either undesignated or designated as “open” to motorized use, meaning that vehicles are free to travel on these lands without restrictions. Unrestricted travel has led to the creation of hundreds of thousands of miles of informal roads and trails; applying standard transportation management and maintenance practices in these cases can be difficult.

The BLM’s transportation system is an integral part of the western American infrastructure, providing access for recreation, commercial activities, and administrative operations, including wildfire management and conservation efforts. The far-reaching benefits stemming from BLM lands include resource harvesting and energy production as well as recreational opportunities, such as scenic driving, camping, biking, hunting, and fishing. A well-maintained, well-connected transportation system is essential to making these beneficial activities possible.

The BLM needs adequate and safe roads to manage land and resources in connection with its multipurpose mission.

Roads

The 76,088 miles of roads that form the BLM transportation system are used widely by the general public, private industry, and BLM employees. Nearly all of the BLM's system roads were originally built for administrative purposes or resource harvesting, but many are now being used for recreation. Growing travel demand and demographic changes have increased the recreational use of BLM system roads. As a result, BLM roads require an increased amount of rehabilitation if they are to continue to provide adequate access to the public, and to ensure visitor safety.

As of 2001¹, only 10 percent of BLM roads were rated in good condition, while 44 percent were rated in poor condition (**Figure 9**).

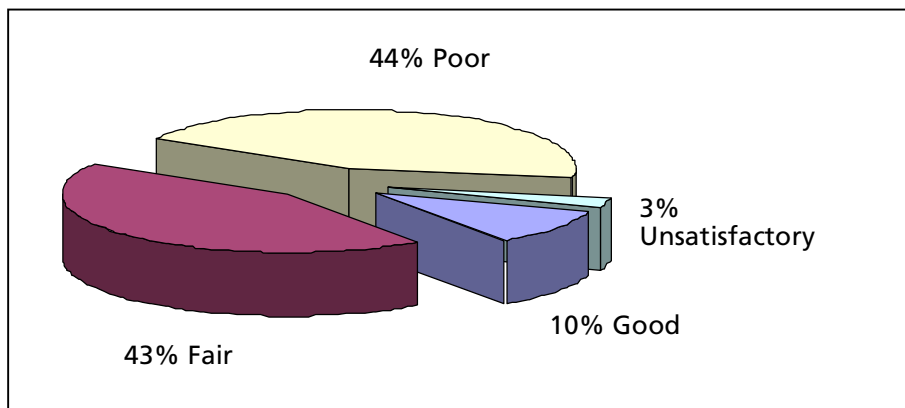


Figure 9 Road conditions, 2001

BLM roads are for the use, development, protection, and administration of public lands and resources. Few are in good enough condition to resemble “typical” urban or suburban arterial streets. Most are naturally surfaced; less than 20,000 miles are gravel roads, and less than 2,000 miles are paved roads. In other words, most BLM roads present challenging driving conditions in any weather, especially for visitors from urban and suburban areas unfamiliar with driving on these surfaces. They can also present special maintenance problems. For the BLM to respond to changing use patterns and accommodate visitor safety, many roads will need to be upgraded to higher standards.

¹ BLM is completing comprehensive baseline condition assessments of its higher-grade roads; the best available representative data is from 2001.

Bridges

The BLM is responsible for managing 776 bridges, providing recreational and administrative access to facilities, trails (including the National Trails System), and National Back Country Byways. The condition of these bridges affects visitor and employee safety as well as emergency response time. BLM bridges range in type, from single-lane wooden river crossings and foot bridges for trail access, to heavy-duty Interstate-type steel truss bridges.

The BLM estimates that 69 percent of its bridges are in good condition and 15 percent are in poor or unsatisfactory condition (**Figure 10**). (Frequent bridge inspections are conducted—every two years—per the National Bridge Inspection Standards requirements of 23 CFR.)

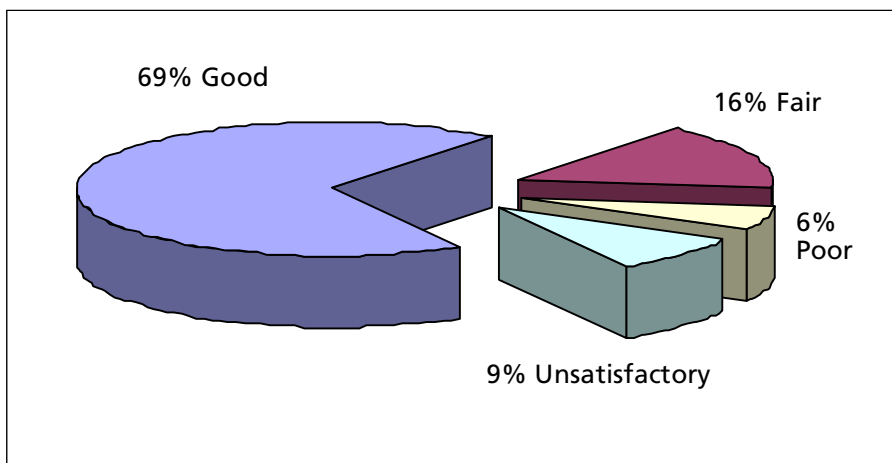


Figure 10 Bridge conditions, 2001



Trails

The BLM manages 18,420 miles of historic, scenic, and recreational trails in addition to thousands of miles of multiple use trails distributed over 258 million acres (Figure 11). These trails provide for outdoor recreation needs, promote the enjoyment, appreciation, and preservation of outdoor areas and historic resources, and encourage public access and citizen involvement.^{xiv}

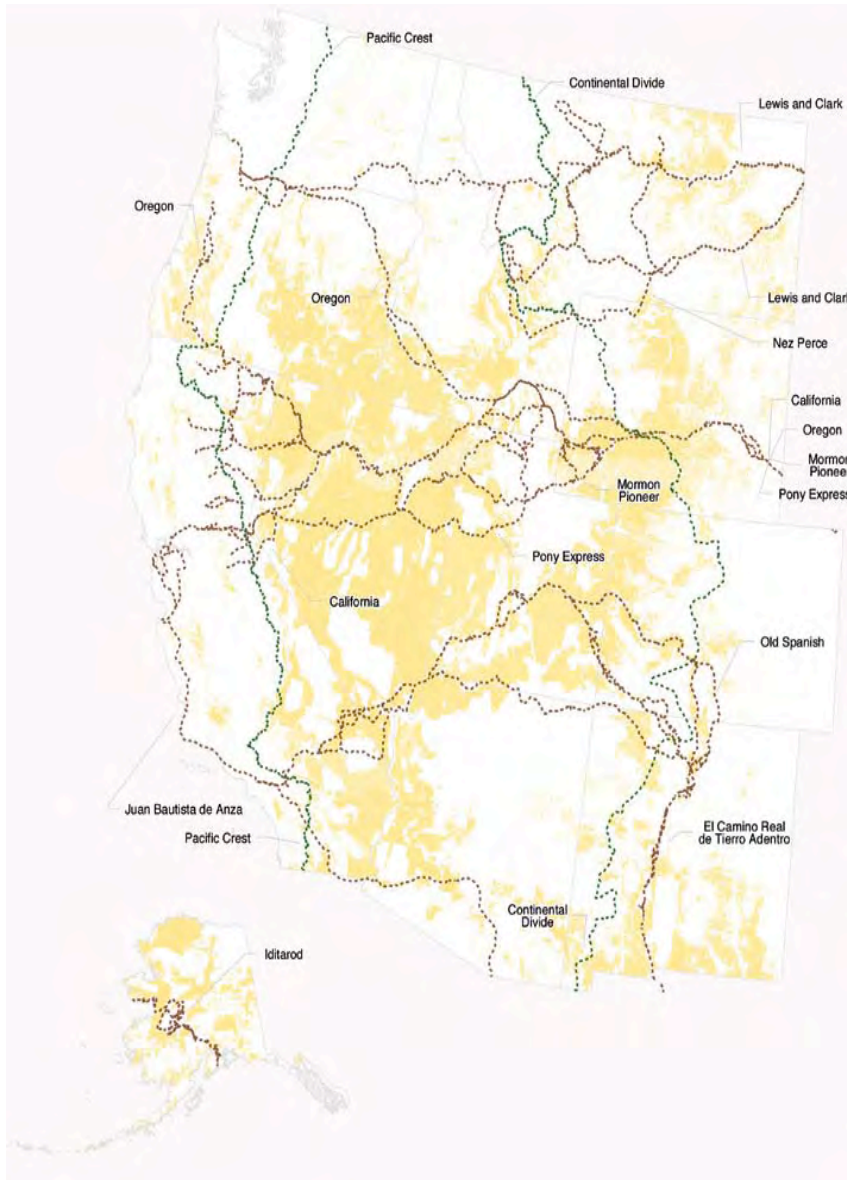


Figure
11

BLM National Scenic and Historic Trails

National Scenic and Historic Trails

The BLM manages nearly 6,000 miles of congressionally designated national scenic and national historic trails under the National Trails System Act of 1968. These trails are the backbone of the National Trails System, which also includes National Recreation Trails and rail-trail authorities. This mileage includes 13 long-distance trails, three national scenic trails totaling 624 miles, and 10 national historic trails totaling 5,355 miles. The BLM manages more miles of national historic trails on-the-ground than any other agency.

The national scenic trails include the Pacific Crest, Potomac Heritage, and the Continental Divide, and the national historic trails include the Iditarod, Nez Perce, Mormon Pioneer, Lewis and Clark, Oregon, California, Juan Bautista de Anza, El Camino Real de Tierra Adentro, Old Spanish, and Pony Express. Approximately 80 BLM Field Offices manage national historic trails, while about 15 offices work on national scenic trails. In addition, the BLM administers (serves as lead agency for) the Iditarod National Historic Trail in Alaska, and collaborates with the National Park Service in this role for El Camino Real de Tierra Adentro and Old Spanish National Historic Trails.

These trails are managed in partnership with several federal, state, and local agencies, the Partnership for the National Trails System, 16 dedicated trail organizations focusing on each individual trail, and other trail-related organizations.

Both national scenic and national historic trails comprise a variety of linear transportation features, including paved highways, gravel roads, maintained dirt roads, primitive roads (two tracks), historic wagon ruts, single-track trail, and point-to-point routes. Auto tour routes are also designated for the national historic trails in agency planning, so that individuals or groups may retrace these trails. Side and connecting trails to these linear interstate giants are also authorized and established under the National Trails System Act. National trails must be maintained to national trails standards.

In 2001, the BLM estimated 27 percent of its trails to be in good condition and 73 percent to be in fair, poor, or unsatisfactory condition (**Figure 12**).

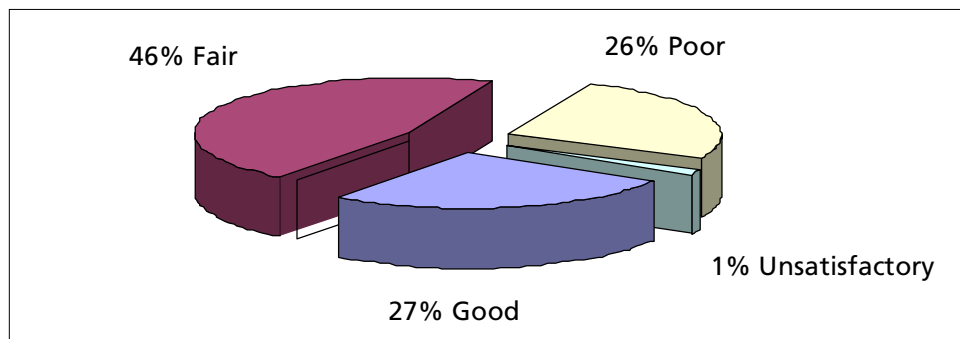


Figure 12 Trail conditions, 2001

Land Management Highway System (LMHS)



The BLM is the lead agency responsible for identifying access needs to BLM lands based on land use and resource management activities, and the impact of those activities upon existing road systems. In 1993, as part of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), the BLM designated the LMHS, which aimed to create *“a BLM-State designated system that would include adjoining State and local roads that provide access to BLM property.”* Land Management Highways are not BLM roads, but designated state and/or county roads that provide access to (or are within) lands administered by the BLM. The creation of the LMHS allowed the BLM to become directly involved in statewide transportation planning when BLM access roads are concerned^{xv}.

The LMHS is the backbone connecting essential BLM resources, facilities, and administrative roads together. A key purpose of the LMHS is to provide improved public access to recreational facilities, BLM Back Country Byways, and the National Trails System (see below). This link helps promote travel and tourism, and related rural economic development. The LMHS also helps serve local needs such as school routes, mail delivery, commercial supplies, and access to private property. Generally, routes on the LMHS are low-volume rural highways, owned by state and local governments.

During FY 1995-96, the first round of Land Management Highways were identified, designated, inventoried, conditions assessed, and the cost of improvements estimated. Approximately 257 routes totaling 7,208 miles were identified and designated as Land Management Highways. Roughly 70 percent of these roads are under the jurisdiction of county governments, and about 50 percent of the mileage of the LMHS is unpaved. **Table 6** shows the miles by state of Land Management Highways designated as of 2001.

Table 6 Land Management Highway System, 2001

State	# of routes	# of miles
AK	8	1,288
AZ	34	793
CA	37	522
CO	11	252
ID	27	617
MT	18	587
NV	25	475
NM	11	455
OR/WA	62	1,290
UT	9	465
WY	15	435
Totals	257	7,208

National Back Country Byways

The BLM developed the National Back Country Byway program to complement the National Scenic Byways program. As an integral part of the larger Scenic Byway system, Back Country Byways show enthusiasts the best the West has to offer in a trip off the beaten path. Most of these byways are native surface or gravel base roads tracing across vast stretches of land.

The BLM recognizes 55 designated National Back Country Byways, totaling 2,952 miles in eleven states. Most of these Back Country Byways are part of the LMHS and are managed collaboratively by the BLM and other jurisdictional agencies.



Planning and data analysis: estimating and prioritizing needs

The BLM has become increasingly aware of the complexities involved in public land management and the effects land use decisions have on others. Land ownership patterns in the West are fragmented, public lands are intermingled with lands owned and managed by many others, while watersheds, plant and animal populations, and human uses cross jurisdictional boundaries.^{xvi} As these complexities increase, so to do the administrative duties of the nearly 11,000 BLM employees in upholding the environmental and economic integrity of our public lands.



One such activity is a centralized data library containing current data in spatial formats, which can be made available for download. Such a data library has already been created for the ten districts administered by the OR/WA BLM office. Users can download over 50 spatial datasets from the OR/WA BLM web site, including those for the BLM road and trail networks. The road and trail datasets contain an extensive amount of data that can easily be displayed spatially using standard Geographic Information System (GIS) software. The following features are a small snapshot of what is included:

- Owner Designation
- Road Classification
- Surface Type
- Access Rights
- Surface Condition
- Mileage
- Special Designation
- Maintenance Responsibility

Figure 13,

Figure 14, and **Figure 15** illustrate BLM road conditions on the Medford District in Southwest Oregon. These maps show that only a small area of BLM roads are in poor or unsatisfactory condition. However, when viewing road conditions in the context of their designation, agency staff is better equipped to conduct a comprehensive needs assessment. When looking at **Figure 15** (BLM-owned roads designated as either Back Country Byways or Land Management Highways), in relation to **Figure 13**, it is clear that a significant portion of Back Country Byways, in the northwest section of the map, is in poor condition. Since Back Country Byways often experience heavier use than the majority of BLM system roads, it can be assumed that maintenance needs are greater for that particular road segment.

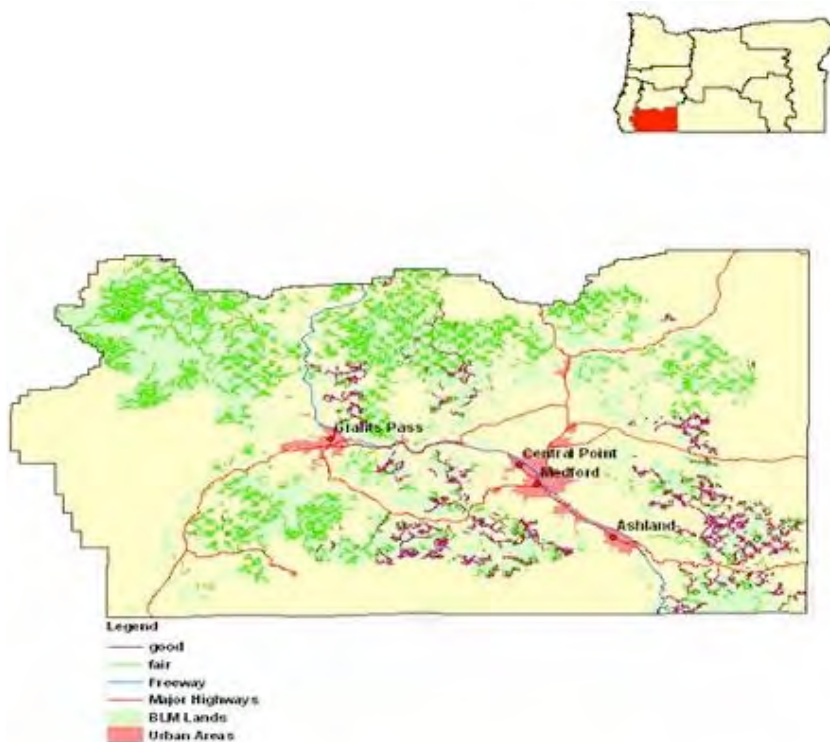


Figure 13 BLM-owned roads in good or fair condition,
Medford District, OR

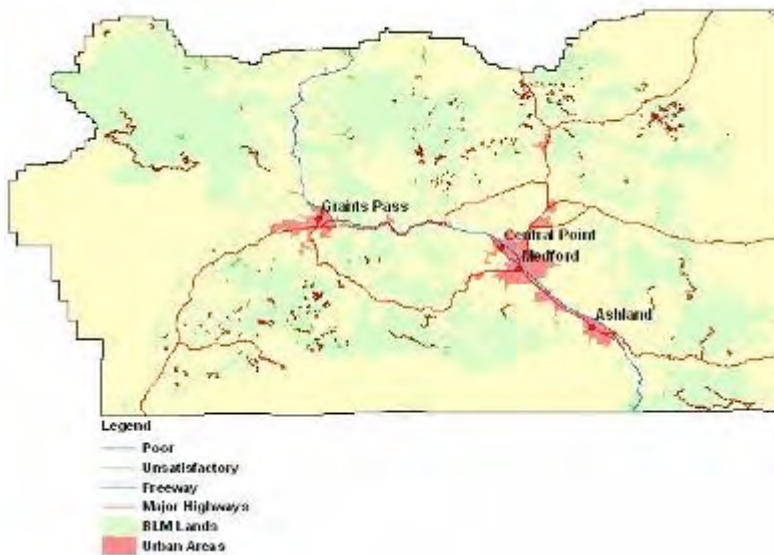
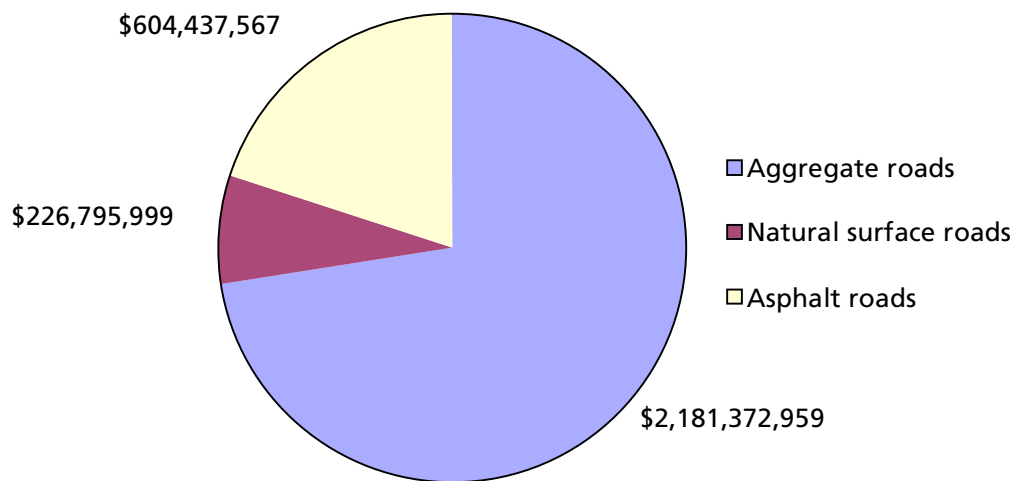


Figure 14 BLM-owned roads in unsatisfactory or poor condition, Medford District, OR



Figure 15 Land Management Highways and Back Country Byways, Medford District, OR

In addition, the OR/WA datasets also contain data on road surface type, which provides a means for estimating the current value of BLM owned roads. The value calculation uses the BLM Road Condition Assessment Current Replacement Value Units Costs Estimation Guide, published in 2005, which provides the per mile cost of replacing single lane BLM roads based on terrain and surface type. Figure 16 illustrates the estimated replacement cost of BLM roads in the Medford District of Southwest Oregon.



*Single lane roads that are currently open,
excluding maintenance level 1 roads

Figure 16 Current replacement value of BLM roads,
Medford District, OR

Endnotes

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- ⁱ Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
- ⁱⁱ http://www.blm.gov/wo/st/en/info/About_BLM.2.html
- ⁱⁱⁱ BLM RMIS data.
- ^{iv} “Public Rewards from Public Lands,” U.S. Fish and Wildlife Service
- ^v <http://www.fhwa.dot.gov/policy/2004cpr/chap20.htm#body>
- ^{vi} “Bureau of Land Management Strategic Plan FY 2000 – 2005”, including text box
- ^{vii} Visitor Days Definition: A *visitor day* is defined as a visit to public lands for more than 12 accumulated hours. A *visit* to public lands is defined as less than a 12 hour accumulated stay.
- ^{viii} BLM FY2005 Annual Report (includes text box information).
- ^{ix} First-round consumer spending represents direct impacts to tourist based economies.
- ^x Estimation procedure was chosen due to limitation in survey coverage and prior studies mostly performed at park level. Commonly accepted model developed for evaluating public lands.
- ^{xi} These estimates do not include airfare.
- ^{xii} http://www.nifc.gov/stats/fires_acres.html
- ^{xiii} “Department of Interior Quick Facts” <http://mits.doi.gov/quickfacts/searcher.cfm>
- ^{xiv} <http://www.americantrails.org/resources/fedland/docs/BLMplan05.pdf>
- ^{xv} BLM guidebook H9100-2
- ^{xvi} <http://www.blm.gov/nhp/info/stratplan/5collaborative.html>
- Above URL takes you to <http://www.blm.gov/wo/st/en.html> - please confirm